37482

AMENDED SPECIFICATION.

Printed as amended under SECTION 8 of the Patents and Designs Acts, 1907 to 1928.

PATENT SPECIFICATION

Convention Date (Germany): March 21, 1930.

356,144

Application Date (in United Kingdom): May 2, 1930. No. 13,598/30.

Complete Accepted: Sept. 2, 1931.

COMPLETE SPECIFICATION (AMENDED)

Improvements in or relating to Hydraulic Cements and the like.

I, Dr. KARL BIEHL, of Lengerich, i.W., Germany, a German Citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to a process for preparing an hydraulic additive for lime, cement and similar materials and is based on the realisation that pure clay, marl containing only small quantities of lime, material derived from volcanic ashes, argillite and other materials containing silicic acid or mixtures thereof [illegible]

The invention is consequently of extremely high practical value, as, in places where high transport costs prevent the use of natural trass, a material resembling the same and containing silicic acid can be readily prepared from the above mentioned materials.

The materials converted according to the invention give in combination with lime, cement and the like, hydraulic mortars by formation of silicates of lime.

It is preferably prior to heating to pulverise the material coarsely or grind it finely.

It has already been proposed to subject infusorial earths, silicious earths and the like, such as moler, to burning at about 900° C, for the purpose of incorporating the product with Portland cement. It has, moreover, been suggested to treat granite or diorite at a temperature of 1000° C. for two hours and to incorporate finely ground prior to heating.

4. The method of preparing a hydraulic additive for lime, cement or the like from materials or mixtures of the character set forth substantially as described.

5. The hydraulic additive prepared by the method claimed in any one of the preceding claims.

Dated this 1st day of May, 1930.

AMENDMENT UNDER SECTION 8.

SPECIFICATION No. 356,144.

The Specification is amended by adding the following words:-

Reference has been directed, in pursuance of Section 8, sub-section 2, of the Patents and Designs Acts, 1907 to 1928, to Specification No. 345,145.

THE PATENT OFFICE,

14th March, 1932.

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PATENT SPECIFICATION

Convention Date (Germany): March 21, 1930.

356,144

Application Date (in United Kingdom): May 2, 1930. No. 13,698/30.

Complete Accepted: Sept. 2, 1931.

COMPLETE SPECIFICATION

Improvements in or relating to Hydraulic Cements and the like.

I, Dr. KARL BIEHL, of Lengerich, i.W., Germany, a German Citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to a process for preparing an hydraulic additive for lime, cement and similar materials and is based on the realisation that pure clay, marl containing only small quantities of lime, material derived from volcanic ashes, argillite and other materials containing silicic acid or mixtures thereof excluding natural hydraulites such as trass, and which have a chemical composition similar to trass, assume hydraulic properties when heated to definite temperatures. They then resemble trass and can consequently be termed "artificial trass". By a sufficiently long treatment at the temperatures suitable for the material under treatment the silicic acid content in the said materials is transformed into soluble silicic acid.

The temperatures to be used are different for each material to be treated and lie between 500° and 700° C. The temperature at which treatment is to take place is previously determined for each material by a fire test and must not be appreciably exceeded or fallen short of as otherwise the hydraulic action of the material would not be attained. The heating can be effected in drying drums or the like or else in the furnaces customary in the cement industry.

In order to ascertain the temperature at which heat treatment is to take place in the case of each material, a number of samples are fired at various temperatures. These are then incorporated with cement for example, and hardening and strength tests made upon test blocks made therefrom.

The invention is consequently of extremely high practical value, as, in places where high transport costs prevent the use of natural trass, a material resembling the same and containing silicic acid can be readily prepared from the above mentioned materials.

The materials converted according to the invention give in combination with lime, cement and the like, hydraulic mortars by formation of silicates of lime.

It is preferably prior to heating to pulverise the material coarsely or grind it finely.

It has already been proposed to subject infusorial earths, silicious earths and the like, such as moler, to burning at about 900° C, for the purpose of incorporating the product with Portland cement. It has, moreover, been suggested to treat granite or diorite at a temperature of 1000° C. for two hours and to incorporate the same with cement or hydraulic lime for the purpose of reacting with the free lime.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that I am aware of prior specifications Nos. 1438/14, 14398/90, 830/98 and 15132/99, and I make no claim to anything disclosed or claimed in these prior specifications, but what I claim is:—

1. A method for the preparation of hydraulic additives for lime, cement or the like, in which pure clay, marl containing only small amounts of lime, volcanic ash materials, argillite or other materials or mixtures thereof, excluding natural hydraulites such as trass, and which have a composition similar to trass, are heated to a temperature determined substantially in the manner set forth and characteristic of each material or mixture within the range 500 to 700° C.

2. A method as claimed in claim 1, in which the heating is effected with continuous temperature control in drying drums or the like or else in the furnaces customary in the cement industry.

3. A method as claimed in claim 1 or 2, in which the material is coarsely or finely ground prior to heating.

4. The method of preparing a hydraulic additive for lime, cement or the like from materials or mixtures of the character set forth substantially as described.

5. The hydraulic additive prepared by the method claimed in any one of the preceding claims.

Dated this 1st day of May, 1930.

DICKER, POLLAK & MERCER,

Chartered Patent Agents,
20 to 23, Holborn, London, E.C.1,
Agents for the Applicant.

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Reference has been directed, in pursuance of Section 8, subsection 3, of the Patents and Designs Act, 1907 and 1919, to Specification No. 178,123.